

DRAFT

Bay-Delta Conservation Plan Goals and Objectives for Terrestrial Covered Species

Introduction

As identified in the BDCP Overview dated January 12, 2009 and other planning documents, the BDCP Steering Committee anticipates that implementation of BDCP proposed covered activities and conservation measures will affect certain terrestrial species and their habitats, and that the BDCP Conservation Strategy will therefore need to address these unavoidable effects. At the direction of the Steering Committee, SAIC has been pursuing the following approach for terrestrial species:

- a. identify the terrestrial species or habitats that may be affected by the proposed BDCP;
- b. identify the biological goals and objectives that may be appropriate for these affected terrestrial species;
- c. identify (by working through the individual substantive workgroups, like habitat and other stressors) the potential conservation measures that may be appropriate to implement for these species and their habitats to meet the relevant goals and objectives;
- d. identify opportunities to work with existing HCP/NCCP plans in these same geographic areas that may already have programs that might be relevant, and pursue discussions with those entities about these opportunities for further collaboration.

This handout presents a preliminary set of draft biological goals and objectives for the proposed terrestrial covered species that may be affected by BDCP implementation. SAIC has developed these two general types of biological goals for terrestrial covered species to serve as a starting point for the discussions of terrestrial species goals. They are presented on a species-by-species basis, but use the following two basic goals.

Goal 1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on the species. This goal would be applied to all proposed terrestrial covered species. This goal is consistent with ESA section 10, which requires that the plan avoids, minimizes, and mitigates impacts to the maximum extent practicable (50 CFR §17.22(b)(2)(B)), and with CESA, which requires that impacts of authorized take of listed species shall be minimized and fully mitigated (California Fish and Game Code §2081(b)(2)).

Goal 2: Conserve the species. This goal would apply to those proposed terrestrial covered species for which 1) habitat will be supported by covered natural communities that will be enhanced and restored under the plan within the Planning Area (i.e., tidal perennial aquatic, tidal fresh emergent wetland, and valley riparian) and in Suisun Marsh (brackish emergent wetland) and 2) implementation of the plan is reasonably certain to measurably benefit the species (see Table 1). For listed species accorded this biological goal, the plan would contribute to its long-term conservation. For non-listed species accorded this goal, the plan would provide a sufficient level of conservation such that, should the species become federal- or California-listed over the term of the BDCP, take of the species would be covered under the plan through ESA section 10 (16 U.S.C. §1539) and NCCP Act assurances (Fish and Game Code §2820(f), §2835).

The biological goals for each of the proposed terrestrial covered species established are presented in Table 1.

Table 1. Biological Goals for Proposed Terrestrial Covered Species

Species	Goal 1: Avoid, Minimize, and Fully Mitigate Impacts	Goal 2: Contribute to Conservation	Covered Natural Communities Supporting Habitat
Riparian brush rabbit	X	X	Valley riparian
Salt marsh harvest mouse	X	X	Brackish tidal wetland
Suisun shrew	X	X	Fresh tidal wetland
Tricolored blackbird	X	X	Brackish tidal wetland, fresh tidal wetland
Yellow breasted chat	X	X	Valley riparian
Western burrowing owl	X		
Swainson's hawk	X	X	Valley riparian
Greater sandhill crane	X		
California black rail	X	X	Brackish tidal wetland, fresh tidal wetland
California clapper rail	X	X	Brackish tidal wetland
Giant garter snake	X	X	Fresh tidal wetland
Western spadefoot toad	X		
Valley elderberry longhorn beetle	X	X	Valley riparian
Conservancy fairy shrimp	X		
Longhorn fairy shrimp	X		
Vernal pool fairy shrimp	X		
Vernal pool tadpole shrimp	X		
Alkali milk-vetch	X		
Delta button celery	X		
Delta mudwort	X	X	Fresh tidal wetland
Delta tule pea	X	X	Fresh tidal wetland

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Species	Goal 1: Avoid, Minimize, and Fully Mitigate Impacts	Goal 2: Contribute to Conservation	Covered Natural Communities Supporting Habitat
Heckard's peppergrass	X		
Legenere	X		
Mason's lilaeopsis		X	Fresh tidal wetland
San Joaquin spearscale	X		
Soft bird's-beak	X		
Suisun Marsh aster	X	X	Brackish tidal wetland, fresh tidal wetland

The BDCP anticipates coordinating implementation of physical habitat conservation measures and measures to compensate the loss of covered species habitats with approved and pending HCPs/NCCPs that overlap or are adjacent to the Planning Area. This coordination is expected to improve the planning and implementation efficiency of the BDCP and these HCP/NCCPs. BDCP proposed terrestrial covered species that are also covered under existing HCPs/NCCPs or proposed for coverage under HCPs/NCCPs that are under development are listed in Table 2.

Table 2. Proposed BDCP Terrestrial Covered Species that are Covered or May Be Covered under Overlapping and Adjacent HCPs/NCCPs

Species	Approved HCPs/NCCPs			HCPs/NCCPs under Development		
	San Joaquin County	East Contra Costa County	Natomas Basin	Yolo County	South Sacramento County	Solano County
Riparian brush rabbit	X					
Salt marsh harvest mouse						X
Suisun shrew						X
Tricolored blackbird	X	X	X	X	X	X
Yellow breasted chat					X	X
Western burrowing owl		X	X	X	X	X
Swainson's hawk	X	X	X	X	X	X
Greater sandhill crane	X		X		X	
California black rail	X					X
California clapper rail						X
Giant garter snake	X	X	X	X	X	X
Western spadefoot toad			X	X	X	

Species	Approved HCPs/NCCPs			HCPs/NCCPs under Development		
	San Joaquin County	East Contra Costa County	Natomas Basin	Yolo County	South Sacramento County	Solano County
Valley elderberry longhorn beetle	X		X	X	X	X
Conservancy fairy shrimp	X	X	X	X		X
Longhorn fairy shrimp	X	X	X			
Vernal pool fairy shrimp	X	X		X	X	X
Vernal pool tadpole shrimp	X	X	X	X	X	X
Alkali milk-vetch	X			X		X
Delta button celery	X					
Delta mudwort	X					X
Delta tule pea	X		X			X
Heckard's peppergrass				X		X
Legenere	X		X		X	X
Mason's lilaeopsis	X					X
San Joaquin spearscale		X		X		X
Soft bird's-beak						X
Suisun Marsh aster	X					X

Goals and Objectives for Terrestrial Wildlife Species

Salt Marsh Harvest Mouse

Goal SMHA1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on salt marsh harvest mouse.

Objective SMHA1.1: Avoid mortality of salt marsh harvest mouse associated with implementation of covered activities and conservation measures.¹

Objective SMHA1.2: Replace each acre of salt marsh harvest mouse habitat removed as a result of covered activities and conservation measures with █ acres of restored habitat within the Planning Area and/or Suisun Marsh.

¹ The salt marsh harvest mouse is a designated fully protected species under the California Fish and Code § 4700. Take as defined in California Fish and Game Code §86 of fully protected species is prohibited. Conservation measures to achieve this objective would avoid take of the species in accordance with California Fish and Game Code § 4700.

Goal SMHA2: Contribute to the conservation of salt marsh harvest mouse within the BDCP Planning Area and Suisun Marsh.

Objective SMHA2.1: Increase the extent of tidal salt marsh harvest mouse habitat in the Planning Area and/or Suisun Marsh by acres.

Suisun Shrew

Goal SUSH1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Suisun shrew.

Objective SUSH1.1: Avoid and minimize take of Suisun shrew associated with implementation of covered activities and conservation measures.

Objective SUSH1.1: Replace each acre of Suisun shrew habitat removed as a result of covered activities and conservation measures with acres of restored habitat within the Planning Area and/or Suisun Marsh.

Goal SUSH2: Contribute to the conservation of Suisun shrew within the BDCP Planning Area and Suisun Marsh.

Objective SUSH2.1: Increase the extent of tidal Suisun shrew habitat in the Planning Area and/or Suisun Marsh by acres.

Riparian Brush Rabbit

Goal RIBR1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on riparian brush rabbit.

Objective RIBR1.1: Avoid mortality of riparian brush rabbit and removal or degradation of occupied habitat associated with implementation of covered activities and conservation measures.

Goal RIBR2: Contribute to the conservation of riparian brush rabbit within the BDCP Planning Area.

Objective RIBR2.1: Increase the extent of riparian brush rabbit habitat near occupied habitats within the Planning Area.

Swainson's Hawk

Goal SWHA1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Swainson's hawk.

Objective SWHA1.1: Avoid and minimize take of Swainson's hawk associated with implementation of covered activities and conservation measures.

Objective SWHA1.2: Replace each acre of occupied nesting habitat (defined as the circular area encompassed by the distance (i.e., radius of the circular area) extending from an occupied nest tree to suitable nest trees up to 500 feet from the occupied nest tree) removed as a result of covered activities and conservation measures with [] acres of restored nesting habitat within the Planning Area and [] miles of the affected habitat.

Objective SWHA1.3: Preserve [] acre(s) of unprotected Swainson's hawk foraging habitat within the Planning Area for each acre of foraging habitat removed as a result of covered activities and conservation measures that is of comparable or greater foraging value than the removed habitat.

Goal SWHA2: Contribute to the conservation of Swainson's hawk within the BDCP Planning Area.

Objective SWHA2.1: Increase the extent of Swainson's hawk nesting habitat within the Planning Area by [] acres.

California Clapper Rail

Goal CLRA1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on California clapper rail.

Objective CLRA1.1: Avoid mortality of California clapper rail associated with implementation of covered activities and conservation measures.²

Objective CLRA1.2: Replace each acre of California clapper rail habitat removed as a result of covered activities and conservation measures with [] acres of comparable restored habitat within or adjacent to occupied or potentially occupied habitat areas within the Planning Area and/or Suisun Marsh.

Goal CACR2: Contribute to the conservation of California clapper rail within Suisun Marsh.

Objective CLRA2.1: Increase the extent of tidal California clapper rail habitat within Suisun Marsh by [] acres.

California Black Rail

² The California clapper rail is a designated fully protected species under the California Fish and Code § 3511. Take as defined in California Fish and Game Code §86 of fully protected species is prohibited. Conservation measures to achieve this objective would avoid take of the species in accordance with California Fish and Code § 3511.

Goal BLRA1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on California black rail.

Objective BLRA1.1: Avoid mortality of California clapper rail associated with implementation of covered activities and conservation measures.³

Objective BLRA1.2: Replace each acre of California black rail habitat removed as a result of covered activities and conservation measures with █ acres of comparable restored habitat within or adjacent to occupied or potentially occupied habitat areas within the Planning Area and/or Suisun Marsh.

Goal BLRA 2: Contribute to the conservation of California black rail within the BDCP Planning Area and Suisun Marsh.

Objective BLRA 2.1: Increase the extent of California black rail habitat within the Planning Area and Suisun Marsh by █ acres.

Greater Sandhill Crane

Goal SACR1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on greater sandhill crane.

Objective SACR1.1: Avoid mortality of greater sandhill crane associated with implementation of covered activities and conservation measures.⁴

Objective SACR1.2: Replace each acre of greater sandhill crane roosting habitat removed or fragmented by covered activities and conservation measures with █ acre(s) of restored roosting habitat within traditional winter use areas in the Planning Area.

Objective SACR1.3: Preserve █ acre(s) of unprotected greater sandhill crane foraging habitat within crane wintering areas in the Planning Area for each acre of foraging habitat removed or fragmented as a result of covered activities and conservation measures that, on a per acre basis, is of comparable or greater foraging value than the removed or fragmented habitat.

Western Burrowing Owl

³ The California black rail is a designated fully protected species under the California Fish and Code § 3511. Take as defined in California Fish and Game Code §86 of fully protected species is prohibited. Conservation measures to achieve this objective would avoid take of the species in accordance with California Fish and Code § 3511.

⁴ The greater sandhill crane is a designated fully protected species under the California Fish and Code California Fish and Code § 3511. Take as defined in California Fish and Game Code §86 of fully protected species is prohibited. Conservation measures to achieve this objective would avoid take of the species in accordance with California Fish and Code § 3511.

Goal BUOW1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on western burrowing owl.

Objective BUOW1.1: Avoid and minimize disturbance of occupied burrowing owl burrows associated with implementation of covered activities and conservation measures.

Objective BUOW1.2: Preserve [] acre(s) of unprotected burrowing owl habitat within the Planning Area for each acre of breeding and wintering habitat removed as a result of covered activities and conservation measures that is of comparable or greater habitat value than the removed habitat.

Tricolored Blackbird

Goal TRBB1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on tricolored blackbird.

Objective TRBB1.1: Avoid and minimize disturbances to active tricolored blackbird breeding colonies associated with implementation of covered activities and conservation measures during the breeding season.

Objective TRBB1.2: Replace each acre of occupied nesting habitat removed as a result of covered activities and conservation measures with [] acre(s) of restored nesting habitat in minimum patch sizes of 0.5 acres within the Planning Area that are in close proximity to foraging habitat.

Goal TRBB2: Contribute to the conservation of tricolored blackbird within the BDCP Planning Area and Suisun Marsh.

Objective TRBB2.1: Increase the extent of tricolored blackbird nesting habitat in the Planning Area and Suisun Marsh by [] acres.

Yellow-breasted Chat

Goal YBCH1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on yellow-breasted chat.

Objective YBCH1.1: Avoid and minimize disturbances to active yellow-breasted chat nest sites associated with implementation of covered activities and conservation measures during the breeding season.

Objective YBCH1.2: Replace each acre of yellow-breasted chat nesting habitat removed as a result of covered activities and conservation measures with [] acre(s) of restored habitat.

Goal YBCH2: Contribute to the conservation of yellow-breasted chat within the BDCP Planning Area.

Objective YBCH2.1: Increase the extent of yellow-breasted chat habitat in the Planning Area by █ acres.

Giant Garter Snake

Goal GIGS1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on giant garter snake.

Objective GIGS1.1: Avoid and minimize take of giant garter snake associated with implementation of covered activities and conservation measures.

Objective GIGS1.2: Compensate for each acre of giant garter snake habitat removed or fragmented as a result of covered activities and conservation measures with █ acre(s) of comparable restored habitat or through preservation of █ acre(s) of unprotected potentially occupied giant garter snake habitat within the Planning Area.

Goal GIGS2: Contribute to the conservation of giant garter snake within the BDCP Planning Area.

Objective GIGS2.1: Increase the extent of tidal giant garter snake habitat within the Planning Area by █ acres.

Western Spadefoot Toad

Goal SPTO1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on western spadefoot toad.

Objective SPTO1.1: Minimize and avoid adverse impacts of covered activities and conservation measures on western spadefoot toad.

Objective SPTO1.2: Compensate for each acre of western spadefoot toad habitat removed as a result of covered activities and conservation measures with █ acre(s) of comparable restored habitat or through preservation of █ acre(s) of unprotected potentially occupied western spadefoot toad habitat within the Planning Area.

Valley Elderberry Longhorn Beetle

Goal VELB1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on valley elderberry longhorn beetle.

Objective VELB1.1: Avoid and minimize take of valley elderberry longhorn beetle.

Objective VELB1.2: Compensate for the removal or degradation of valley elderberry longhorn beetle habitat. [*Note to Reviewers: it is anticipated that conservation measures for this objective would be consistent with the July 9, 1999 USFWS valley elderberry longhorn beetle compensation guidelines.*]

Goal VELB2: Contribute to the conservation of valley elderberry longhorn beetle within the BDCP Planning Area.

Objective VELB2.1: Increase the extent of riparian habitats that support elderberry shrubs by █ acres within the Planning Area.

Fairy Shrimp (Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp, Conservancy Fairy Shrimp, and Longhorn Fairy Shrimp)

Goal FASH1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on fairy shrimp.

Objective VPFS1.1: Avoid and minimize take of fairy shrimp associated with implementation of covered activities and conservation measures.

Objective VPFS1.2: Compensate for the removal or degradation of occupied fairy shrimp habitats. [*Note to Reviewers: it is anticipated conservation measures for this objective would be consistent with USFWS guidelines dated February 28, 1996.*]

Alkali milk-vetch

Goal ALMV 1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on alkali milk-vetch.

Objective ALMV1.1: Avoid and minimize impacts on occurrences of alkali milk-vetch and on the watersheds which support its vernal pool, vernal swale, alkali meadow, and alkali sink habitat associated with implementation of covered activities and conservation measures.

Objective ALMV1.2: Compensate for each acre of occupied alkali milk-vetch habitat removed or degraded as a result of covered activities and conservation measures with █ acre(s) of comparable restored habitat and provide for the establishment of alkali milk-vetch in the restored habitat or through preservation

of [] acre(s) of occupied alkali milk-vetch habitat within the Planning Area or Suisun Marsh.

Delta Button-Celery

Goal DEBC1: Avoid, minimize, and fully mitigate adverse effects of covered activities and conservation measures on delta button-celery.

Objective DEBC1.1: Avoid and minimize impacts on occurrences of delta button-celery associated with implementation of covered activities and conservation measures.

Objective DEBC1.2: Compensate for each acre of occupied delta button-celery habitat removed or degraded as a result of covered activities and conservation measures with [] acre(s) of comparable restored habitat and provide for the establishment of delta button-celery in the restored habitat or through preservation of [] acre(s) of occupied delta button-celery habitat within the Planning Area.

Delta Mudwort

Goal DEMW1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Delta mudwort.

Objective DEMW1.1: Avoid and minimize impacts on occurrences of delta mudwort associated with implementation of covered activities and conservation measures.

Objective DEMW1.2: Compensate for each linear foot of occupied delta mudwort habitat removed or degraded as a result of covered activities and conservation measures with [] linear feet of comparable restored habitat and provide for the establishment of delta mudwort in the restored habitat or through preservation of [] linear feet of occupied delta mudwort habitat within the Planning Area or Suisun Marsh.

Goal DEMW2: Contribute to the conservation of delta mudwort within the BDCP Planning Area and Suisun Marsh.

Objective DEMW2.1: Increase the extent of delta mudwort tidal channel margin habitat within the Planning Area and Suisun Marsh by [] linear feet.

Delta Tule Pea

Goal DETP1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Delta tule pea.

Objective DETP1.1: Avoid and minimize impacts on occurrences of delta tule pea associated with implementation of covered activities and conservation measures.

Objective DETP1.2: Compensate for each linear foot of occupied delta tule pea habitat removed or degraded as a result of covered activities and conservation measures with [] linear feet of comparable restored habitat and provide for the establishment of delta tule pea in the restored habitat or through preservation of [] linear feet of occupied delta tule pea habitat within the Planning Area or Suisun Marsh.

Goal DETP2: Contribute to the conservation of delta tule pea within the BDCP Planning Area and Suisun Marsh.

Objective DETP2.1: Increase the extent of delta tule pea tidal channel margin habitat within the Planning Area and Suisun Marsh by [] linear feet.

Heckard's Peppergrass

Goal HEPE 1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Heckard's peppergrass.

Objective HEPE1.1: Avoid and minimize impacts on occurrences of Heckard's peppergrass and on the watersheds which support its vernal pool, vernal swale, alkali meadow, and alkali sink habitat associated with implementation of covered activities and conservation measures.

Objective HEPE1.2: Compensate for each acre of occupied Heckard's peppergrass habitat removed or degraded as a result of covered activities and conservation measures with [] acre(s) of comparable restored habitat and provide for the establishment of Heckard's peppergrass in the restored habitat or through preservation of [] acre(s) of occupied Heckard's peppergrass habitat within the Planning Area.

Legenere

Goal LELI1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on legenere.

Objective LELI1.1: Avoid and minimize impacts on occurrences of legenere and on the watersheds which support its vernal pool and vernal swale habitat associated with implementation of covered activities and conservation measures.

Objective LELI1.2: Compensate for each acre of occupied legenere habitat removed or degraded as a result of covered activities and conservation measures with [] acre(s) of comparable restored habitat and provide for the establishment of legenere in the restored habitat or through preservation of [] acre(s) of occupied legenere habitat within the Planning Area.

Mason's Lilaeopsis

Goal MALI1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Mason's lilaeopsis.

Objective MALI1.1: Avoid and minimize impacts on occurrences of Mason's lilaeopsis associated with implementation of covered activities and conservation measures.

Objective MALI1.2: Compensate for each linear foot of occupied Mason's lilaeopsis habitat removed or degraded as a result of covered activities and conservation measures with [] linear feet of comparable restored habitat and provide for the establishment of Mason's lilaeopsis in the restored habitat or through preservation of [] linear feet of occupied Mason's lilaeopsis habitat within the Planning Area or Suisun Marsh.

Goal MALI2: Contribute to the conservation of Mason's lilaeopsis within the BDCP Planning Area and Suisun Marsh.

Objective MALI2.1: Increase the extent of Mason's lilaeopsis tidal channel margin habitat within the Planning Area and Suisun Marsh by [] linear feet.

San Joaquin Spearscale

Goal SJSP1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on San Joaquin spearscale.

Objective SJSP1.1: Avoid and minimize impacts on occurrences of San Joaquin spearscale and on the watersheds which support its vernal pool, vernal swale, alkali meadow, alkali sink, and brackish tidal marsh habitat.

Objective SJSP 1.2: Compensate for each acre of occupied San Joaquin spearscale habitat removed or degraded as a result of covered activities and conservation measures with [] acre(s) of comparable restored habitat and provide for the establishment of San Joaquin spearscale in the restored habitat or through preservation of [] acre(s) of occupied San Joaquin spearscale habitat within the Planning Area or Suisun Marsh.

Soft Bird's-Beak

Goal SOBB1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on soft bird's beak.

Objective SOBB1.1: Avoid take of soft bird's beak associated with implementation of covered activities and conservation measures.

Suisun Marsh aster

Goal SUMA1: Avoid, minimize, and fully mitigate adverse effects of covered activities and BDCP conservation measures on Suisun Marsh aster.

Objective SUMA1.1: Avoid and minimize impacts on occurrences of Suisun marsh aster associated with implementation of covered activities and conservation measures.

Objective SUMA1.2: Compensate for each linear foot of occupied Suisun marsh aster habitat removed or degraded as a result of covered activities and conservation measures with [] linear feet of comparable restored habitat and provide for the establishment of Suisun marsh aster in the restored habitat or through preservation of [] linear feet of occupied Suisun marsh aster habitat within the Planning Area or Suisun Marsh.

Goal SUMA2: Contribute to the conservation of Suisun Marsh aster within the BDCP Planning Area and Suisun Marsh.

Objective SUMA2.1: Increase the extent of Suisun marsh aster tidal channel margin habitat within the Planning Area by [] linear feet.